

CLAIMS

1. A computer system, comprising:

5 a plurality of computer processor cores in which
at least two differ in processing performance, and in which
all execute the same instruction set; and

a performance measurement and transfer mechanism
for distributing a plurality of computer processing jobs
amongst the plurality of computer processor cores according
10 to a best fit of processor hardware availability to
processing software requirements.

2. The computer system of claim 1, further comprising:

at least one of an operating system, firmware, and
15 special-purpose hardware hosted on the plurality of computer
processor cores and including the performance measurement
and transfer mechanism, and providing for a periodic test of
whether a particular computer processing job would be a
better fit of processor hardware availability to processing
20 software requirements on a different hosted one of the
plurality of computer processor cores.

3. The computer system of claim 1, further comprising:

at least one of an operating system, firmware, and
25 special-purpose hardware hosted on the plurality of computer
processor cores and including the performance measurement
and transfer mechanism, and providing for a periodic test of
whether a particular computer processing job was a better
fit of processor hardware availability to processing
30 software requirements on a previously hosted one of the
plurality of computer processor cores.

4. The computer system of claim 1, further comprising:

at least one of an operating system, firmware, and
35 special-purpose hardware hosted on the plurality of computer
processor cores and including the performance measurement

and transfer mechanism, and providing for a test of particular operating states within each of the computer processor cores in a decision as to where to place a given processing software workload.

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5. The computer system of claim 1, further comprising:

at least one of an operating system, firmware, and special-purpose hardware hosted on the plurality of computer processor cores and including the performance measurement

10 and transfer mechanism, and providing for a test of operating states within each of the computer processor cores in a decision as to where to place a given processing software workload, wherein said operating states are dependent on at least one of the operating voltage and clock
15 frequency of a corresponding one of the plurality of computer processor cores.

6. The computer system of claim 1, further comprising:

at least one of an operating system, firmware, and
20 special-purpose hardware hosted on the plurality of computer processor cores and including the performance measurement

and transfer mechanism, and providing for a test of operating states within each of the computer processor cores in a decision as to where to place a given processing
25 software workload, wherein said operating states are dependent on run-time re-configuration of hardware structures of corresponding ones of the plurality of computer processor cores.

30 7. A method for operating multiple processor cores, comprising:

placing a plurality of computer processor cores on a single semiconductor die, in which at least two computer processor cores differ in processing performance, and in

35 which all execute the same instruction set;

measuring the performance of each of a plurality of computer processing jobs hosted amongst the plurality of computer processor cores; and

- 5 transferring individual ones of said plurality of computer processing jobs amongst targeted ones of said plurality of computer processor cores according to a best fit of processor hardware availability to processing software requirements.

- 10 8. The method of claim 7, further comprising:

 hosting at least one of an operating system, firmware, and special-purpose hardware on the plurality of computer processor cores to include performance measurement and transfer mechanisms, and providing for a periodic test
15 of whether a particular computer processing job would be a better fit of processor hardware availability to processing software requirements on a different hosted one of said plurality of computer processor cores.

- 20 9. The method of claim 7, further comprising:

 hosting at least one of an operating system, firmware, and special-purpose hardware on the plurality of computer processor cores to include a performance measurement and transfer mechanism, and providing for a
25 periodic test of whether a particular computer processing job was a better fit of processor hardware availability to processing software requirements on a previously hosted one of said plurality of computer processor cores.

- 30 10. The method of claim 7, further comprising:

 hosting at least one of an operating system, firmware, and special-purpose hardware on the plurality of computer processor cores to include a performance measurement and transfer mechanism, and providing for a test
35 of particular operating states within each of said computer

processor cores in a decision as to where to place a given processing software workload.

11. The method of claim 7, further comprising:
5 hosting at least one of an operating system,
firmware, and special-purpose hardware on the plurality of
computer processor cores to include a performance
measurement and transfer mechanism, and providing for a test
of operating states within each of the computer processor
10 cores in a decision as to where to place a given processing
software workload, wherein said operating states are
dependent on at least one of the operating voltage and clock
frequency of a corresponding one of the plurality of
computer processor cores.

15 12. The method of claim 7, further comprising:
 hosting at least one of an operating system,
firmware, and special-purpose hardware on the plurality of
computer processor cores to include a performance
20 measurement and transfer mechanism, and providing for a test
of operating states within each of the computer processor
cores in a decision as to where to place a given processing
software workload, wherein said operating states are
dependent on run-time re-configuration of hardware
25 structures of corresponding ones of the plurality of
computer processor cores.

13. The method of claim 7, further comprising:
 statically associating workloads for execution on
30 specific processor cores based on a profiling history.

14. The method of claim 7, further comprising:
 dynamically associating workloads for execution on
specific processor cores based on an empirical measurement.

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15. The method of claim 7, further comprising:
associating workloads for execution on
specific processor cores based on at least one of user and
application hints.

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16. A computer system, comprising:
a plurality of computer processor cores in which
at least two differ in processing performance, and in which
all execute the same instruction set; and

10 a performance measurement and transfer mechanism
for distributing a plurality of computer processing jobs
amongst the plurality of computer processor cores according
to a best fit of processor hardware availability to
processing software requirements;

15 wherein, said processing performances depend on a
forecast of particular processing jobs that will be
executed.